IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A digital integrated circuit temperature sensor comprising:

an analog-to-digital converter ~~(3)~~ providing a binary word ~~(DT)~~ representative of a temperature internal to the integrated circuit;

a generating circuit ~~(2)~~ for providing an analog voltage ~~(V_{TH})~~ representative of the circuit temperature and for generating a reference voltage ~~(V_{BG})~~ for the analog-to-digital converter; and

a calibration circuit ~~(4)~~ providing respective high ~~(V_{RHF})~~ and low ~~(V_{RLF})~~ conversion thresholds to the converter, the low voltage corresponding to said reference voltage ~~(V_{BG})~~, said calibration circuit comprising:

a first operational amplifier ~~(32)~~ having a non-inverting input receiving said reference voltage ~~(V_{BG})~~ and having its output providing said high conversion threshold ~~(V_{RHF})~~, the non-inverting input of the first amplifier being connected to the junction point ~~(33)~~ of two variable resistive elements ~~(R32IN, R32OUT)~~ series-connected between the output terminal ~~(34)~~ of the first amplifier and a supply reference potential ~~(V_{SS})~~; and

a second operational amplifier ~~(36)~~ having an inverting input terminal receiving the analog voltage ~~(V_{TH})~~ depending on temperature and having a non-inverting input connected to the midpoint ~~(37)~~ of two resistive elements ~~(R36IN, R36OUT)~~ series-connected between the output terminal of said second operational amplifier and said supply reference potential ~~(V_{SS})~~, the second operational amplifier providing an amplified voltage to be converted by said analog-to-digital converter ~~(3)~~.

2. (Currently Amended) The sensor of claim 1, wherein said generating circuit ~~(2)~~ comprises, in parallel between first, second, third, and fourth terminals ~~(11, 15, 19, 21)~~ of a current mirror ~~(30)~~ all providing an identical current ~~(I)~~ from a high supply rail ~~(V_{DD})~~ and copying the voltage of the first terminal on the second one, to a low supply rail ~~(V_{SS})~~,

respectively:

a first diode-connected PNP-type bipolar transistor ~~(10)~~;

a first resistive element ~~(13)~~ in series with a second diode-connected PNP-type bipolar transistor ~~(14)~~, the second bipolar transistor being of greater size than the first one;

a second resistive element ~~(18)~~ in series with a third diode-connected PNP-type bipolar transistor ~~(17)~~, the third bipolar transistor being of a size identical to the first one and said third terminal ~~(19)~~ providing the reference voltage ~~(V_{BG})~~; and

a current-to-voltage conversion element ~~(20)~~, said fourth terminal ~~(21)~~ providing the analog voltage ~~(V_{TH})~~ representative of the temperature.

3. (Currently Amended) The sensor of claim 2, comprising a voltage mirror formed of two N-channel MOS transistors ~~(N1, N2)~~, copying the voltage between said first and second terminals.

4. (Currently Amended) The sensor of claim 2, wherein said conversion element is a resistor ~~(20)~~.

5. (Currently Amended) The sensor of claim 1, wherein said variable resistive elements ~~(R32IN, R32OUT, R36IN, R36OUT)~~ are formed of networks of switchable resistors.

6. (Currently Amended) An integrated circuit comprising:

a digital temperature sensor comprising an analog-to-digital converter ~~(3)~~ providing a binary word ~~(DT)~~ representative of a temperature internal to the integrated circuit, and a generating circuit ~~(2)~~ for providing an analog voltage ~~(V_{TH})~~ representative of the circuit temperature and for generating a reference voltage ~~(V_{BG})~~ for the analog-to-digital converter; and

a JTAG port of communication with the outside of the circuit, an input/output register ~~(62)~~ of the integrated circuit being connected to a register ~~(5)~~ for ~~memorizing~~ storing the result provided by the analog-to-digital converter ~~(3)~~.

7. (Original) The circuit of claim 6, wherein said digital temperature sensor is the sensor of claim 1.

8. (Currently Amended) An integrated circuit comprising:

a digital temperature sensor comprising an analog-to-digital converter ~~(3)~~ providing a binary word ~~(DT)~~ representative of a temperature internal to the integrated circuit, and a generating circuit ~~(2)~~ for providing an analog voltage ~~(V_{TH})~~ representative of the circuit temperature and for generating a reference voltage ~~(V_{BG})~~ for the analog-to-digital converter; and

a logic block ~~(71)~~ of interpretation of the current temperature measured by the sensor to control the frequency ~~(f)~~ and/or the supply voltage ~~(V_{DD})~~ of the integrated circuit.

9. (Original) The circuit of claim 8, wherein digital temperature sensor is the sensor of claim 1.

10. (Currently Amended) A method for controlling the clock frequency ~~(f)~~ of a digital integrated circuit, ~~consisting of~~ comprising varying the clock frequency in a way inversely proportional to the internal temperature of the circuit.

11. (Currently Amended) The method of claim 10, wherein the temperature is measured by means of a sensor comprising:

an analog-to-digital converter ~~(3)~~ providing a binary word ~~(DT)~~ representative of a temperature internal to the integrated circuit; and

a generating circuit ~~(2)~~ for providing an analog voltage ~~(V_{TH})~~ representative of the circuit temperature and for generating a reference voltage (V_{BG}) for the analog-to-digital converter.

12. (Original) The method of claim 10, wherein the temperature is measured by means of the sensor of claim 1.

13. (Currently Amended) A method for controlling the supply voltage ~~(V_{DD})~~ of a

digital integrated circuit, ~~consisting of~~ comprising varying the supply voltage in a way inversely proportional to the internal circuit temperature.

14. (Currently Amended) The method of claim 13, wherein the temperature is measured by means of a sensor comprising:

an analog-to-digital converter ~~(3)~~ providing a binary word ~~(DT)~~ representative of a temperature internal to the integrated circuit; and

a generating circuit ~~(2)~~ for providing an analog voltage ~~(V_{TH})~~ representative of the circuit temperature and for generating a reference voltage (V_{BG}) for the analog-to-digital converter.

15. (Original) The method of claim 13, wherein the temperature is measured by means of the sensor of claim 1.